

MEMORANDUM

TO: All Licensed Mine Operators and Blasting Contractors

FROM: _____
Conrad T. Spangler, Division Director

SUBJECT: Electronic Blast Detonator Systems

DATE: March 28, 2005

The Department of Mines, Minerals and Energy, Division of Mineral Mining has become aware that blast initiation systems with electronic detonators are being used at a number of mines within the Commonwealth. There have been questions about how to apply Virginia's requirements for shunting and circuit testing to electronic detonators. Electronic detonator systems incorporate circuit testing by use of their unique blasting controllers. The means of shunting is provided by their design and constructional features.

We have developed Communication Memorandum 01-05 to assist mine operators and independent contractors in selecting electronic blast detonator systems that are accepted as complying with Virginia's blasting rules.

If you have any questions about electronic blast detonator systems, the process for their approval for use in Virginia's mineral mines, or Communication Memorandum No 01-05, you may contact your site mine inspector, Mark Goff or me at (434) 951-6310.

Enclosure

DEPARTMENT OF MINES, MINERALS AND ENERGY
DIVISION OF MINERAL MINING



COMMUNICATION MEMORANDUM NO. 01-05

March 28, 2005

REFERENCE: 4 VAC 25-40-100 Employee Training

New or reassigned employees shall be trained in state and company safety regulations and shall be task trained prior to being assigned a task or duty. Records of training shall be kept in writing at the mine site for two years or for 60 days after termination of employment.

4 VAC 25-40-330 Proper Use of Machinery

Machinery and equipment shall be used only for the purpose and within the capacity for which they were intended and designed.

4 VAC 25-40-920 Electric Detonators

- A. When electric detonators are used, an acceptable blaster's galvanometer or blaster's multimeter shall be used to test detonators, firing lines, series circuits, and total circuit resistance prior to firing.
- B. Electric detonators of different brands shall not be used in the same blast,
- C. Except when being tested with an acceptable instrument:
 - 1. Electric detonators shall be kept shunted until they are connected into the series circuit;
 - 2. Series circuits shall be kept shunted until they are connected onto the firing line; and
 - 3. Firing lines shall be kept shunted until immediately before blasting.
- D. Blasting machines or other acceptable power sources shall be suitable for the number of electric detonators to be fired and for the type of circuits to be used.
- E. When electric detonators are used, sources of stray current to the blasting area shall be de-energized. Blasting activities shall be stopped immediately if stray current or static electricity in amounts sufficient to cause a premature detonation is encountered.

INQUIRY: Blast initiation systems with electronic detonators are being used at a number of mines within the Commonwealth. The Mine Safety And Health Administration (MSHA) issued "Program Information Bulletin

P04-20” on September 27th, 2004 regarding the use and approval of certain electronic detonation systems.

REVIEW: The Division of Mineral Mining (DMM) has examined the characteristics of the electronic detonators that are currently being used, obtained input from the manufacturers of these systems, reviewed MSHA test reports and “Program Information Bulletin P04-20”, and considered the applicability of relevant DMM regulations to these electronic systems.

**DIVISION
DIRECTIVE:**

DMM will accept the systems that are currently approved under the MSHA “Program Information Bulletin P04-20” as being in compliance with its blasting regulations and suitable for use in the mineral mining industry within the Commonwealth. The Daveytronic® Digital Blasting System and the I-KON™ Digital Energy Controlled System are the two electronic detonator systems that have been evaluated and determined to comply with MSHA’s standards.

In accordance with 4 VAC 25-40-100, personnel involved in the use of these systems must be properly task trained.

In accordance with 4 VAC 25-40-330, the systems must be used in accordance with the manufacturers’ recommendations, and with the dedicated hardware and software associated with each of these systems.

In accordance with 4 VAC 25-40-920:

- The test hardware and software associated with each of these systems provide the equivalent functionality of a blaster’s galvanometer or blaster’s multimeter, and are considered suitable for detonator and circuit testing.
- Based on their design, these electronic detonators are considered to be shunted according to the approval and manufacturer’s recommendation as approved in the MSHA “Program Information Bulletin P04-20”.
- Firing lines must remain shunted unless required for programming, testing, or initiation.

As additional electronic detonation systems are evaluated and approved by MSHA, operators intending to use the systems must notify the Division of Mineral Mining before the systems are used in Virginia’s mines. The DMM will evaluate the systems and determine whether such systems are suitable prior to use in the mineral mining industry within the Commonwealth.